TESTING FOR OPAQUENESS IN THE EUROPEAN BANKING INDUSTRY: EVIDENCE FROM BOND CREDIT RATINGS

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ABSTRACT

The question of whether banks are relatively more opaque than non-banking firms is empirically investigated by analyzing the disagreement between rating agencies (split ratings) on 2,473 bonds issued by European firms during the 1993-2003 period. Four main results emerge from the empirical analysis. First, fewer bank issues have split ratings overall, but the predicted probability of a split rating is higher for banks after controlling for risk and other issue characteristics. Second, subordinated bonds are subject to more disagreement between rating agencies. Third, bank opaqueness increases with financial assets and decreases with bank fixed assets. Fourth, bank opaqueness increases with bank size and capital ratio. The implications for regulatory policy are also discussed.

JEL Classification Numbers: G20, G21, G28

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1. INTRODUCTION

The banking industry is one of the most regulated in the world. Two arguments are usually presented to justify bank regulation[1]: i) systemic risk and ii) depositor protection. Both of them stem from information asymmetry, which justifies bank existence itself.

The first argument contends that the purpose of regulation is to prevent systemic bank runs, which in turn may be caused by the inherent instability of banks' balance sheet structure. Banks act as providers of liquidity (Bryant (1980) and Diamond and Dybvig (1983)) by issuing demand deposits. This explains the liability side of banks' balance sheet. Banks act also as delegated monitors (Diamond (1984)). Borrowers are supposed to be better informed about their investments than lenders are. However, lenders may choose to delegate monitoring to a bank. This explains the asset side of banks' balance sheet. Hence, banks finance relatively illiquid and informationally opaque loans with liquid demand deposits. Depositors' lack of information about bank assets can trigger systemic runs, even on healthy banks, which may culminate in a system failure.

According to the second argument, the regulation rationale builds on a corporate governance problem (Dewatripont and Tirole (1994)). Banks, like all other firms, need to be monitored by investors in order to prevent moral hazard and adverse selection problems. However, bank depositors face unusually severe governance problems because they are unsophisticated and lack information about informationally opaque bank assets. Hence, they need a representative (the regulator) who acts as a monitor of banks.

Deposit insurance (and lender of last resort) is efficient in protecting depositors and preventing bank runs, but it leads to bank moral hazard, as it diminishes depositors' incentive to monitor banks and increases banks' incentive to take more risks. This problem justifies bank capital regulation. Requiring minimum capital as a percentage of risk-adjusted assets prevents banks from excessive risk taking[2].

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[1] For a review of the banking regulation literature see Santos (2001).
[2] See Berger, Herring, and Szegö (1995) for an analysis of the role of capital in financial institutions.

To sum up, the key argument for banking regulation is bank opaqueness, which comes primarily from financial assets. Loans are informationally sensitive and, hence, hard to monitor by bank outsiders. Even more liquid financial assets, like trading assets, may be a cause of opaqueness. Unlike loans, trading assets are transparent, but they are also easy to change and as a result banks cannot commit to specific trading positions[3]. Therefore bank financial assets (both hard to observe loans and easy to change trading assets) may be an inherent source of bank opaqueness.

Bank opaqueness is not only a theoretical issue. Recently academics and regulatory economists have suggested that supervisory authorities should rely on market discipline to improve banking prudential supervision. The Basel Committee on Banking Supervision has recognized the role of market discipline in supplementing traditional supervisory methods. In the New Basel Capital Accord (Basel 2001), market discipline is one of three pillars on which the future banking oversight should be based. While the first two pillars focus on capital regulation and national banking supervision, the third pillar is aimed at improving banks' disclosure for an effective market discipline. Among other conditions for an effective market discipline, investors should have complete information on bank risk and promptly impound this information into the bank's stock and bond prices. This condition can be undermined by an inherent bank opaqueness. Several studies investigated the relationship between bank liabilities spreads and bank risk[4], but only two papers address the question of whether banks are relatively more opaque than other firms, with contradictory results.

Morgan (2002) investigates relative bank opaqueness using split rating as a proxy for uncertainty[5]. A split rating occurs when Moody's and Standard & Poor's (S&P's) assign a different rating to a bond issue. Using data on new U.S. bonds issued between 1983 and 1993, he finds that rating agencies disagree more often over bank issues than over non-bank issues. He

[3] This is what Myers and Rajan (1998) call "the paradox of liquidity".
[4] For a review of U.S. empirical evidence see Flannery (1998) and Flannery and Nikolova (2003). I am aware of three empirical studies based on European banks: Bruni and Paternò (1995), Gropp, Vesala and Vulpes (2001) and Sironi (2003).
[5] Following Morgan (2002), I use the term "opaqueness" and "uncertainty" equivalently.

also finds that bank assets and capital structure can explain this disagreement, as the likelihood of a split rating increases with the amount of cash, loans, and trading assets, and decreases with the amount of real estate, capital and with bank size.

Flannery, Kwan and Nimalendran (2004) use market microstructure properties and analyst' earnings forecasts to assess whether banks are relatively more opaque than non-banks. Although they find no evidence that banks are more opaque, their results show that bank asset categories differ in their opaqueness.

Following Morgan (2002), this paper investigates bank relative opaqueness by examining whether Moody's and S&P's disagree more often over bank bonds than over non-banks ones. Also, it investigates whether bank asset mix and capital structure can explain this disagreement. In this study I extend the existing literature in two directions. First, I empirically analyzed data on new bond issues completed by private sector firms from 14 European countries during the 1993-2003 period. Testing for bank opaqueness in Europe is important because of some peculiarities of European banking firms. The main banking crises in continental European countries have been solved through government bailout or mergers led by supervisory authorities. Thus, the banking crises caused no direct creditor loss. In addition, the abolition of government's *de facto* bailout policy does not seem "politically" credible. Many *ex ante* political statements aimed at limiting bank protection have been violated by *ex post* government interventions (Calomiris (1999)). Reducing bank risk of default, these implicit government guarantees, may also reduce rating agencies' perception of bank uncertainty. Furthermore, the level of disclosure for European non-banking firms tends to be lower than it is for U.S. non-banking firms. One would therefore expect weaker evidence of bank relative opaqueness in Europe.

Second, this study examines the effect of bond seniority on the disagreement between rating agencies. Subordinated debt is generally viewed as an ideal instrument for providing bank market discipline for three main reasons. First, subordinated debt investors have strong incentives to discipline bank risk-taking (provided they believe that they will not benefit from

government guarantees). They are exposed to loss that exceeds bank's equity capital, but their potential upside gains are limited. Hence, they have similar incentives to those of deposit insurer. On the contrary, equity investors can also gain from higher risk. Second, among bank liabilities, subordinated debt is junior to all claims other than equity and so is more risk-sensitive. Finally, subordinated debt typically has long maturity. Thus, it is difficult to redeem quickly, mitigating systemic risk. Indeed, numerous proposals for strengthening market discipline of banks aim at introducing a mandatory subordinated debt policy[6]. As such, testing for the impact of subordinate debt on rating agencies' disagreement is of particular interest.

Six main results emerge from the empirical analysis: i) fewer bank issues have split ratings overall, but the predicted probability of a split rating is higher for banks after controlling for risk and other issue characteristics; ii) banking is not the industry that generates the most uncertainty in absolute; iii) a lower bond seniority increases the disagreement between rating agencies; iv) bank uncertainty increases with financial assets and decreases with fixed assets; v) bank uncertainty increases with bank size, as larger banks are more complex and benefit from vague, implicit government guarantees; vi) bank uncertainty increases with the capital ratio, which reflects a lower asset quality.

This paper proceeds as follows. Section 2 presents the methodology of the empirical analysis. Section 3 describes the data sources and summarizes sample characteristics. Section 4 presents the empirical results. Section 5 concludes.

2. RESEARCH METHODOLOGY

The disagreement over issue ratings between the major rating agencies is used as a proxy for uncertainty. Ratings are assigned by agencies to the issue at the time of issuance, hence, they reflect both the creditworthiness of the issuing firm and the bond characteristics. Furthermore, Santos (2003) finds that the likelihood of a split rating depends on macroeconomics conditions.

[6] See Kwast *et at.* (1999, Table 1) for a careful review of these proposals.

As such the empirical analysis involves regressions of the following forms:

$Pr(disagreement_i) = f(issuer_i, issue_i, control_i) + \varepsilon_i$

Disagreement = the absolute difference between Moody's and S&P's issue ratings (0, 1, 2, 3+) converted into numerical scale[7]

$issuer_i$ = issuer characteristics

$issue_i$ = issue characteristics

$control_i$ = control variables

The following issuer characteristics are employed:

BANK A dummy variable that equals 1 if the issuer is a bank and zero otherwise. If banks generate more uncertainty, this variable would positively affect the probability of disagreement.

AUTO, BUILD, CHEM, CONS, ELE, ENGI, ENE, FOOD, FORE, INDU, INSU, MEDIA, OFIN, OIL, RET, TELE, OTHER[8] – Industry dummies equal to 1 if the bond issuer's main activity is in the corresponding industry, 0 if not. If each non-banking industries generate less uncertainty compared to banks, these variables should negatively affect the probability of disagreement. On the other side, a positive coefficient sign for some industries would indicate that, other things equal, those industries generate more frequent splits than banks[9].

STDEV The standard deviation in rating for each issuer (across issues). The expected coefficient sign is positive, as a less stable level of risk over time should increase the likelihood of a split.

[7] Table 1 reports rating scales.
[8] Each industry's complete name is reported in Tables 2 and 3. The OTHER variable includes industries for which less than ten observations were available. These include airlines, aerospace, health care, hotel & leisure, iron & steel, investment trust, public services, real estate, railways, rubber & plastics, tobacco and transport and shipping.
[9] BANK dummy variable is omitted, when industry dummy variables are employed.

The following issue variables are employed:

RATING — The average of Moody's and S&P's issue ratings. This variable should positively affect the probability of disagreement as uncertainty may be a function of risk itself.

SQRATING — The square of RATING. This variable should capture non-linear relationship between uncertainty and risk. A negative coefficient sign would indicate that uncertainty is a concave function of risk.

SUB — A dummy variable that equals 1 if the issue is subordinated and zero if it is senior. Rating agencies may disagree on the expected recovery rate of subordinated debt. Furthermore, it might be more difficult to evaluate the effects of implicit government guarantees for bank subordinated issues. Thus, subordination may create more uncertainty, which is why I expect a positive sign.

Morgan (2002) finds that issue size and maturity affect the probability of a split rating[10]. This is why I include the following control variables:

AMOUNT — The natural log of the bond issue U.S. dollar equivalent amount (face value).

MATU — The time to maturity (in years) of the issue.

Finally, in order to control for macroeconomic and any other bond market conditions the following control variables are included:

D93, D94, …, D03 – Year dummies. Each dummy variable is equal to 1 if the issue has been completed during the correspondent year and zero otherwise.

GER, FRA, NET, LXE, UKE, OTHERCOU – Country dummies. Each country dummy

[10] Morgan (2002) finds that issue size negatively affects the probability of a split rating. He attributes this result to the positive correlation between issue size and firm size. He also finds that longer maturity increases uncertainty.

variable is equal to 1 if the issuer nationality is that of the corresponding country and zero otherwise.

DM, DFL, EURO, FFR, STG, USD, OTHERCUR – Currency dummies. Each dummy variable is equal to 1 if the bond issue is denominated in the corresponding currency and zero otherwise[11].

I use accounting measures as issuer characteristics, to test whether disagreement over bank bond issues is related to the banks' asset mix and capital structure. Total assets are broken down in the following major categories:

LOANS — The ratio of loans to total assets. Loans include discounted bills, short term loans, mortgages and other long term loans, and doubtful loans. This variable should positively affect the probability of disagreement if loans are more difficult to assess.

OTHEREARN — The ratio of other earning assets to total assets. Other earning assets include deposits with banks, trading securities, and equity investments. The expected coefficient sign is positive if this category contains easy to change financial assets. However, a negative sign would indicate that these assets are perceived by rating agencies as more transparent.

FIXED — The ratio of fixed to total assets. Fixed assets include real estate and premises. If fixed assets reduce uncertainty, the expected sign is negative.

NONEARN — The ratio of non-earning assets to total assets[12]. Non-earning assets include cash, intangible assets (goodwill), accrued income, and pre-paid expenses. On one hand, this variable may negatively affect the likelihood of a split, since it includes cash, which is a transparent. On the other hand, cash is

[11] D93, OTHERCOU and OTHERCUR dummy variables have been dropped to avoid collinearity in the data.

[12] The sum of LOANS, OTHEREARN, FIXED, and NONEARN gives one. OTHEREARN and NONEARN variables have been alternatively dropped to avoid collinearity in the data.

also easy to change, hence, it may increase uncertainty. Furthermore, this ratio includes items which depend on subjective assumptions, like accrued income. This may result in a positive coefficient sign.

In order to assess the effect of liquid financial assets on bank uncertainty, I employed the following variable:

LIQUID — The liquidity ratio is the ratio of the liquid financial assets to total assets. This ratio is computed by FitchIBCA BankScope, who use their judgement to determine the liquid portion of LOANS and OTHEREARN. A positive coefficient is expected as liquid assets are easy to change and, hence, they may increase uncertainty. However, more liquid assets are also more transparent. A negative sign would result in this case.

To control for bank size and capital structure, I employ the following variables:

TA — The natural log of total assets. Larger banks may be more diversified and less exposed to idiosyncratic risks. They may also disclose more information. Moreover, larger banks benefit from implicit government guarantees, which may reduce uncertainty. Therefore, I expect a negative sign.

CAPITAL — The ratio of the book value of equity to total assets. Equity includes preferred shares and common equity. By reducing risk, capital may also mitigate uncertainty. A negative coefficient would result in this case.

Ordered logit regressions with and without the inclusion of fixed effects for each issuing bank are estimated. Fixed effects control for omitted firm characteristics that remain constant over time.

3. DATA SOURCES AND SAMPLE CHARACTERISTICS

The data are from two sources: Capital Data Bondware and FitchIBCA BankScope. Capital Data Bondware reports information on issuer (nationality, industry, etc.) and issue (Moody's and Standard & Poor's rating, years to maturity, face value, maturity date, currency, issue type, etc.). I collect issue ratings and other issue characteristics for all European jointly rated issues of fixed rate, non-convertible, non-perpetual and non-callable bonds during the 1993-2003 period. This sample has 8,457 bonds of which 5,984 were issued by central banks, supranational institutions, central governments, or government owned firms. I exclude these, since the empirical analysis is focused on private sector issues. The remaining sample has 2,473 bonds issued by 248 firms from 14 European countries.

This sample suffers from two potential selection biases. First, more bonds are issued during the second part of the nineties than during the first part. This is partly the consequence of a general increase in the numbers of issues and partly the consequence of the availability of both Moody's and S&P's ratings. Second, companies tend to issue bonds when the market is more receptive. The number of bond issues is particularly high during the 2000 low interest rate environment. However, these biases should not limit the adequacy of the empirical sample as a basis for answering the key questions of this study. If split ratings tend to be more frequent in banking issues and this appears to be explained by banking assets, then these results should hold independently of the two above mentioned potential biases.

FitchIBCA BankScope is a database with information on financial statements, rating, shareholders and subsidiaries of over 10,000 banks worldwide. This database is the source of balance data and accounting ratio. Detailed information on sample characteristics is provided in Tables 2, 3, 4 and 6. Table 1 provides information on rating scales.

4. EMPIRICAL RESULTS

4.1. Descriptive analysis

Table 2 reports sample summary statistics by industry of the issuer. I perform t-test for equality of banking and non-banking variable means. The majority of the sample issues have been completed by banks (2,051 out of 2,473). Bank issues are remarkably better rated than non-bank issues. The mean rating is 2.26 (about Aa1/AA+) for banking issues and 5.55 (about A2/A) for non-banking ones. Bank issues have also shorter maturity and smaller face value. The standard deviation across all bank issues is smaller than across all non-banks, perhaps because the non-banks represent a more heterogeneous group of activities. On the other hand, the variation of ratings by a single issuer is larger for the typical bank than for the typical non-bank.

Table 3 reports the measures of disagreement between rating agencies. I perform t-test for equality of banking and non-banking variable means. Comparing Moody's and S&P's ratings across industries suggests that neither agency consistently rates higher than the other.

Based on an unconditional comparison across industries, I cannot clearly say whether banks or non-banks have more split ratings. Bank issues receive split ratings for 36.71% of issues, compared to 46.21% for non-banks, and this difference is significantly different from zero at the 1% level. The average absolute gap (i.e. the average of the absolute difference between Moody's and S&P's ratings) is also smaller for bank issues than for non-banks (0.53 and 0.61, respectively). When rating agencies disagree, however, bank issues tend to have larger gaps: 33.5% of the split bank issues have a gap greater than 1, compared to only 21.5% of the split non-bank issues. The univariate evidence on banks' relative uncertainty is therefore ambiguous.

Table 4 reports summary statistics for the sample by year of bond issuance. There is no clear pattern in the evolution of split-rated issues over time.

4.2. Are banks more opaque than firms in other industries?

I conduct multivariate analysis in order to account for the effect of other factors on the probability of a split rating. Column 1 of Table 5 reports results of ordered logit regressions of the absolute gap on BANK dummy variable. χ^2 (p-value) for the test that coefficients are jointly

different from zero as well as pseudo R^2 are reported at the bottom of the table. The BANK dummy variable is statistically significant and has a positive coefficient, indicating that bank issues generate more disagreement between rating agencies. This result does not change when including SQRATING (column 2) and STDEV (column 3) in the set of independent variables. Thus, even though split-rated bonds are fewer for banks (Table 3), banks generate more uncertainty compared to other industries after controlling for the risk (i.e. the average of Moody's and S&P's ratings) and other characteristics of the issue. RATING is positive and statistically significant at the 1% level, confirming that uncertainty is a function of the risk itself.

The variables joint explanatory power significantly improves when including SQRATING in the set of explanatory variables (column 2). This variable's coefficient is negative and strongly significant, suggesting that uncertainty is a concave function of risk.

The coefficient on SUB is positive and significant (columns 1 and 2), indicating that priority in corporate liabilities matters. Lower priority increases the likelihood of a split rating. The subordination in corporate liabilities should lower the rating, but not necessarily the uncertainty. In fact subordinated debt is rated by subtracting one or two notches from the rating assigned to senior debt. This downgrading procedure is explained by the difference in the expected recovery rate between senior and subordinated bonds. Thus the result is most likely the consequence of a disagreement between the rating agencies on the expected recovery rate on subordinate debt.

The STDEV[13] (column 3) coefficient is positive and statistically significant at the 1% level, indicating that within standard deviation in ratings accounts for the uncertainty of the issuer. A less stable creditworthiness over time increases the likelihood of a split. The within standard deviation in ratings is higher in bank issues than in non-bank ones (Table 3). Nonetheless even controlling for STDEV, the BANK dummy variable remains strongly significant (column 3).

[13] Including STDEV reduces the number of observations from 2,473 to 2,386 because there are 87 issuers with a single issue, for which the within standard deviation cannot be calculated.

Bank issues generate more disagreement between rating agencies and this result does not depend on their less stable creditworthiness over time.

Including STDEV reduces the significance of SUB. Apparently, the downgrading procedure for rating subordinated debt causes a higher within standard deviation in ratings. Hence, the effect of the SUB dummy variable may be included in STDEV.

As far as the control variables are concerned, I document the following findings[14]. The coefficients on AMOUNT and MATU are not significant. This might mean that the face value and the maturity of the issue are not variables that agencies consider when assigning credit ratings. Among year dummy variables only d99, d00, d01, d02 are statistically significant. DM, STG and USD are the only statistically significant currency dummy variables. Finally, all country dummy variables are significant, with the exception of UKE. A clear interpretation of these results is difficult to provide. Nonetheless, they confirm the prediction of Santos (2003) that both bond market and macroeconomic conditions account for rating agencies disagreement.

4.3. Are there any industries that generate more uncertainty than the banking industry?

While my results so far provide strong evidence that banks produce more uncertainty than non-banks as a whole, they do not necessarily imply that there is no single industry that generates more frequent splits than banks. Columns 4, 5 and 6 of Table 5 report ordered logit estimates of regression coefficient using industry dummy variables instead of the BANK dummy variable.

By breaking up the non-bank issues into industry categories, I document two interesting results. First, after controlling for the square of rating and the within standard deviation of ratings (column 6), constructions (CONS), energy & utility (ENE) and OTHER[15] dummy variables have a positive and significant coefficient. Hence, banking does not generate the largest proportion of split ratings. Morgan (2002) finds that only insurance firms' issues

[14] To save space, results for control variables are not reported.
[15] Not including SQRATING, OTHER dummy variable is significant at the 10% level, but with negative sign (column 1). The change in sign could be attributed to the heterogeneous nature of the other industries.

generate more frequent split ratings than bank issues. Because my sample differs from Morgan's both in time and issuer nationality[16], it is difficult to reconcile these contrasting results. One possible explanation is based on the different level of financial disclosure between continental European countries and the U.S. For example, in some European countries the quality of accounting standards tends to be lower than in the U.S.[17] Thus, some non-banking industries can generate more disagreement than a rather opaque industry such as banking.

Second, the insurance dummy variable (INSU) is not significant, contrary to previous evidence. European insurance firms' issues do not generate more uncertainty than banks. It must be noted that in 1991, the 91/674/CEE Directive, aimed at improving the financial disclosure of European insurance firms, was issued by the European Community. This may have reduced the relative uncertainty on insurance firms[18].

4.4. Has bank relative uncertainty changed over time?

I estimated the same kind of ordered logit regression based on BANK dummy variable for two sub-samples (1993-1999: 1,014 observations and 2000-2003: 1,372 observations) in order to check whether bank relative uncertainty significantly changed over time. Columns 7 and 8 of Table 5 report the results. Two main differences between the two sub-samples emerge.

First, SUB is positive and statistically significant in the 2000-03 sub-sample only. This result is most likely the consequence of the following two factors. First, there is a lower number of subordinated issues in the 1993-99 period (55) than in the 2000-03 period (84). Second, rating agencies' different perception of the expected recovery rate for subordinated debt might

[16] Morgan (2002) uses a sample of U.S. new bonds issued between 1983 and 1993.

[17] Rajan and Zingales (1998) report accounting standard ratings (created by The Center for International Financial Analysis and Research) for different countries. European countries such as Austria, Belgium, Denmark, Germany, Italy, Netherlands, Portugal and Spain have among the worst accounting standards, together with less developed countries such as Chile or the Philippines.

[18] Contrary to the result obtained with BANK dummy variable, AMOUNT is positive and significant (not reported). This result suggests that issue face value may be somewhat endogenous to the industry. The following reasoning justifies this conclusion. If each industry has a typical average face value (depending on average firm size, asset composition, capital structure, etc.), then a positive and significant AMOUNT coefficient when including industry dummy variables may indicate an increase in uncertainty when issue size is bigger than expected for a *certain industry*. This in turn could be the consequence of two factors: i) issue size is a proxy for firm size, thus suggesting that bigger firm generate more uncertainty than smaller ones; and ii) unexpectedly large (than the average for the industry) issue size increases uncertainty.

have increased over time. This in turn could be the consequence of an improvement in the subordinated bond evaluation implied in the rating process[19].

Second, STDEV is positive and statistically significant in the 2000-03 sub-sample only. This might be due to the relative stability of this variable in the 1993-99 sub-sample as a result of the more turbulent financial market conditions in the 2000-2003 period.

These results indicate that no significant evolution of bank uncertainty occurred over time. Banks are relatively more opaque both in the 1993-1999 period and in the 2000-03 period.

4.5. Do asset mix and capital structure explain bank uncertainty?

I run separate regressions for issues completed by banks for which accounting variables are available (1,429), in order to check whether bank uncertainty reflects the mix of bank assets and bank capital structure. Comparing balance sheet variables across different countries may be problematic, because the definition of many accounting variables differs from country to country. This is why my analysis uses major balance sheet categories as opposed to breaking down these into non-comparable detailed sub-categories. Tables 6 and 7 report summary statistics for the bank accounting variables and the estimation results, respectively. Ordered logit regressions with the inclusion of fixed effects are also estimated (columns 4, 5 and 6 of Table 7).

Five important results emerge. First, asset mix seems to explain part of bank uncertainty. In the regression results reported in column 1 of Table 7 the excluded ratio[20] is OTHEREARN, which makes it the benchmark. Substitution into LOANS out of OTHEREARN increases uncertainty, while substitution into FIXED and NONEARN reduces uncertainty. Excluding NONEARN (column 2 of Table 7) indicate that both LOANS and OTHEREARN increase uncertainty when compared to NONEARN, and FIXED still reduces uncertainty. Hence,

[19] This result is consistent with Gabbi and Sironi (2002). They attribute this result to the fact that most empirical studies on bonds' recovery rates appeared in the mid and late nineties.
[20] The sum of LOANS, OTHEREARN, FIXED and NONEARN equals one. One of these variables must be dropped to avoid collinearity in the data.

consistent with previous research, substitution into bank "paper" (i.e. financial assets) out of non-earning assets increases uncertainty, while real estate and premises reduce uncertainty.

Both cash (included in NONEARN) and fixed assets are relatively transparent assets, but the latter seems to decrease bank uncertainty compared to the former. This might be explained by the "paradox of liquidity" argument. Both cash and fixed assets are easy to observe, but unlike fixed assets, cash is easy to change. Alternatively, items like goodwill, accrued income and pre-paid expenses (included in NONEARN) may be less transparent than fixed assets.

Second, substitution into liquid financial assets out of non-liquid *financial* assets reduces bank uncertainty. Column 3 of Table 7 reports results for the ordered logit regression when the liquidity ratio is used. Compared to non-liquid financial assets (the excluded ratio), all other balance sheet categories reduce uncertainty: LIQUID, FIXED and NONEARN coefficients are negative and statistically significant at the 1% level. This result indicates that although liquid financial assets are easy to change, non-liquid financial assets are *harder* to observe. Hence, the latter increase uncertainty compared to the former.

Third, surprisingly, CAPITAL is positive and strongly significant (columns 1, 2 and 3 of Table 7). Unlike previous research, the ratio of capital to total assets increases the likelihood of a split rating. This might be explained by the role of capital in bank regulation. Banks are required to hold a certain minimum level of capital as a percentage of risk-adjusted assets. A higher level of capital reduces risk, which is the main reason for setting a minimum capital requirement. Nonetheless this mitigating risk effect should be captured by the RATING variable, which is positive and strongly significant[21] (columns 1, 2 and 3 of Table 7). Therefore a higher level of capital may simply reflects lower bank asset quality not captured by RATING.

Morgan (2002) finds that disagreement between rating agencies is decreasing in the capital ratio. One possible explanation for this contrasting result is based on the capital adequacy regulation. The Basle Accord came into effect at yearend 1990. Before this date, U.S. regulation

[21] SQRATING is also significant and negative (columns 1, 2 and 3 of Table 7), confirming that uncertainty is a concave function of risk.

required a simple capital ratio, i.e. not related to risk-adjusted assets[22]. Morgan's sample includes bonds issued between 1983 and 1993, hence, it is possible that an higher capital ratio (in the U.S. regulation pre-Basle Accord), rather than reflecting a lower asset quality, mitigates uncertainty by reducing agency problems[23].

Fourth, contrary to previous evidence, TA is positive and strongly significant (columns 1, 2 and 3 of Table 7). Greater size may imply greater complexity and, hence, greater uncertainty. Alternatively, greater size could increase the disagreement between rating agencies concerning the extension of implicit government guarantees, which are not *de jure* defined. Rating agencies perceive that larger banks benefit from implicit guarantees. Since such guarantees are implicit or conjectural, the assessment of their effects on bank rating is *uncertain*.

Finally, the SUB coefficient is positive and statistically significant at the 1% level (columns 1, 2 and 3), thus confirming the different rating agencies' expectations about recovery rates on subordinated debt. This could be in part due to different perceptions of the implicit government guarantees on bank liabilities, and especially on the more risk-sensitive subordinated debt.

As far as the control variables are concerned, I document the following findings[24]: i) AMOUNT and MATU are not significant; ii) no year dummy variables is statistically significant, iii) DM and EUR are the only statistically significant currency dummy variables, iv) all country dummy variables are significant.

Columns 4, 5 and 6 of Table 7 report estimation results with fixed effects. These are similar to the results obtained with a standard ordered logit model with two exceptions. First, excluding other earning assets, LOANS is no longer statistically significant (column 4). If I include fixed effects, there is no significant difference between LOANS and OTHEREARN. Second, the

[22] Before the Basle Accord came into effect at the end of 1990, U.S. bank capital regulation employed two measure of capital adequacy: i) primary capital (including equity and loan loss reserves) had to exceed 5.5% of assets; ii) the total amount of primary plus secondary (including subordinated debentures) had to exceed 6% of assets.

[23] This is consistent with Flannery and Rangan (2002) who find an increase in U.S. bank' equity ratio during the 1990's. They also find that U.S. banks are holding more capital per unit risk in the 1990's when compared with 1980's. They attribute these results to a banks' response to market changes, directly linking the reduction in implicit government guarantees to the increase in equity capitalization.

[24] To save space, results for control variables are not reported.

liquidity of financial assets is also unimportant. Nonetheless, the main findings concerning bank asset mix and capital structure are confirmed: bank uncertainty increases with bank "paper" (i.e. LOANS and OTHEREARN), total assets, and capital ratio, while it decreases with fixed assets.

4.6. Robustness checks

I conduct robustness checks regarding the explanatory power of bank accounting variables. The definition of many accounting variables is not uniform across European countries. Although I use in the regressions major asset categories, accounting measures might be country-specific and might produce misleading results when used for banks from different countries. Because of this problem, I run separate ordered logit regressions employing accounting variables interacted with country dummies and with the inclusions of fixed effects (columns 7, 8 and 9 of Table 7). The following results emerge as far as specific accounting variables are concerned[25]. First, when the excluded ratio is OTHEREARN, LOAN has a negative coefficient for the Netherlands. The other significant coefficients are not materially different from the ones estimated with accounting variables alone (column 7). Second, when the excluded ratio is NONEARN, all significant coefficients are similar to the ones obtained with accounting variables alone (column 8). Third, LIQUID is positive and significant for Germany and the Netherlands. FIXED, is also positive and significant for Germany, while CAPITAL is positive and significant as it is when only accounting variables are included. These results confirm in part that accounting variables are country-specific. Nonetheless, the two main results concerning the effect of bank asset mix and bank capital structure on uncertainty are confirmed: i) financial assets (LOANS and OTHEREARN) increase bank uncertainty; and ii) bank uncertainty increases with CAPITAL, since capital ratio reflects asset quality.

I use an alternative measure of size, based on the ratio between the issuing bank TA and its country's banks average TA, in the regression specifications reported in Table 7. Since implicit guarantees are country-specific, the issuing bank size relative to the average size of banks in the same country could represent a better variable to test for the rating agencies' perception of these

[25] To save space, results are reported for statistically significant coefficients only.

type of guarantees. Results, not reported, do not differ in any material way from the ones obtained with TA: bank size is positive and significant. This result confirms that vague and implicit government guarantees on bank liabilities increase uncertainty.

I conduct a robustness check regarding the temporal evolution of bank relative uncertainty. Estimation samples are restricted to those issues completed by firms that issued in both periods. This is aimed at testing whether the results depend on the different identity of the issuing firms. Results, not reported, confirm the basic findings: banks are relatively more opaque both in the 1993-1999 period and in the 2000-03 period.

Variations of specifications reported in Tables 5 and 7 are estimated as a check on the use of GAP variable. Using the absolute difference between Moody's and S&P's issue rating (0, 1, 2, 3+) could produce misleading results if uncertainty is proxied just by the disagreement between agencies, and not by the "level" of disagreement. Therefore, logit regressions have been run employing a binomial dependent variable (i.e. 0 if Moody's and S&P's agree, 1 otherwise). Results, not reported, are similar to one obtained with GAP.

5. CONCLUSIONS

Three major conclusions emerge from the empirical work presented in this paper. First, banks appear to be among the more opaque industries, but not the *most* opaque one. Second, bank size, asset mix and capital structure can explain bank opaqueness. Third, lower bond seniority increases opaqueness.

These conclusions have important policy implications for any proposal which aims at strengthening the market discipline of banks. Bank financial assets (bank "paper") are more likely to cause disagreement between rating agencies, while fixed assets reduce the likelihood of a split rating. Therefore, some degree of uncertainty appears to be inherent to the banking business and provides a rationale for bank regulation. Bank uncertainty may flow from the growing complexity of large banking organizations, as the result concerning bank size seems to suggest. Nonetheless, part of bank uncertainty may be caused by the unclear, implicit

government guarantees on bank liabilities. If government guarantees are vague, because they are extended beyond their *de jure* boundaries, market valuation of bank risk will be more subjective and less certain. Although bank risk is inherently hard to judge, there are some margins to increase bank transparency in order to enhance market discipline.

Market participants can effectively discipline bank when they promptly impound complete information in the prices of bank securities and, by doing so, affect bank risk-taking decision. Of course, banks' creditors must not anticipate any bailout or perceive any government guarantees, because this would lower the quality of market discipline in two ways. First, government guarantees eliminate the incentive for private investors to monitor. Second, when guarantees are implicit or conjectural, rather than reducing private investors' incentive, they cause uncertainty in bank risk assessment.

This increased uncertainty might be even worse for those bank liabilities which less clearly benefit from implicit guarantees, such as subordinated debt.

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Table 1 – Rating Scales

VALUE / RATING TYPE	1	2	3	4	5	6	7	8	9	10
Moody's	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3
Standard & Poor's	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-

Table 2 – Sample Descriptive Statistics – Distribution by Industry

	N. of			Rating[c] (mean)	Rating Std. Dev.		Maturity (mean. years)	Amount	
	Issues	Sub[b]	Issuers		Between	Within[d]		(mean. $ ml)	(total. $ ml)
Banking (BANK)	2,051	130	101	2.26	1.55	0.61	6.56	226.94	465,464
non-Banking	422	9	147	5.55	2.10	0.41	7.77	325.85	137,509
t-test[a] *(p-value)*	-	-	-	(0.000) ***	-	(0.000) ***	(0.000) ***	(0.000) ***	-
Automotive (AUTO)	12	1	5	5.92	1.82	0.82	4.05	150.17	1,802
Building Society (BUILD)	16	3	5	4.59	1.42	0.35	8.97	167.16	2,675
Chemicals (CHEM)	15	0	11	5.93	1.24	0.12	8.62	764.00	11,460
Construction (CONS)	10	0	2	7.40	0.57	0.51	6.54	326.55	3,266
Electronics (ELE)	12	0	5	6.92	0.85	0.12	11.25	445.81	5,350
Engineering (ENGI)	14	0	9	6.57	1.19	0.00	7.62	244.67	3,425
Energy & Utility (ENE)	54	0	29	6.02	2.00	0.22	11.64	274.06	14,799
Food & Drink (FOOD)	16	0	5	4.47	2.67	0.18	5.51	254.53	4,073
Forest Products (FORE)	12	0	4	8.46	0.69	0.00	6.49	250.92	3,011
Industrials (INDU)	14	0	3	5.39	0.74	0.73	6.23	274.89	3,848
Insurance (INSU)	16	4	4	4.72	1.57	0.57	11.56	299.76	4,796
Media & Publishing (MEDIA)	10	0	7	7.00	2.09	0.47	7.88	386.88	3,869
Other Financials (OFIN)	46	1	8	4.92	2.78	0.24	4.35	284.57	13,090
Oil. Coal and Gas (OIL)	35	0	10	4.04	1.82	0.17	8.01	190.70	6,675
Retail. & Cons. Goods (RET)	44	0	8	5.89	1.45	0.37	6.30	279.10	12,280
Telecom (TELE)	59	0	13	4.58	1.79	1.00	5.11	491.06	28,972
Others (OTHER)	37	0	19	6.57	2.03	0.27	12.11	381.56	14,118
Total	2,473	139	248	2.82	2.07	0.58	6.77	243.82	602,973

a: t-test for equality of Banking and Non Banking variable means. ***,**, and * indicate statistical significance at the 1%, 5% and 10% level, respectively
b: Subordinated issues
c: Average of Moody's and S&P's rating
d: Average of standard deviation across issues by same issuer

Table 3 – Sample Descriptive Statistics – Disagreement Between Rating Agencies

	Moody's (mean)	S&P's (mean)	Split[b] (%)	Abs. Gap[c]	Absolute Gap Distribution			
					0	1	2	3+
Banking (BANK)	2.25	2.27	36.71%	0.53	63.29%	24.43%	9.51%	2.78%
non-Banking	5.58	5.51	46.21%	0.61	53.79%	36.26%	7.35%	2.61%
t test[a] *(p-value)*	(0.000)	(0.000)	(0.000)	(0.078)	(0.000)	(0.000)	(0.161)	(0.844)
	***	***	***	*	***	***		
Automotive (AUTO)	5.75	6.08	16.67%	0.33	83.33%	8.33%	0.00%	8.33%
Building Society (BUILD)	4.44	4.75	50.00%	0.56	50.00%	43.75%	6.25%	0.00%
Chemicals (CHEM)	6.13	5.73	46.67%	0.53	53.33%	40.00%	6.67%	0.00%
Construction (CONS)	7.80	7.00	100.00%	1.00	0.00%	100.00%	0.00%	0.00%
Electronics (ELE)	6.92	6.92	33.33%	0.33	66.67%	33.33%	0.00%	0.00%
Engineering (ENGI)	6.71	6.43	57.14%	0.57	42.86%	57.14%	0.00%	0.00%
Energy & Utility (ENE)	6.07	5.96	55.56%	0.85	44.44%	29.63%	22.22%	3.70%
Food & Drink (FOOD)	4.38	4.56	43.75%	0.44	56.25%	43.75%	0.00%	0.00%
Forest Products (FORE)	8.58	8.33	25.00%	0.25	75.00%	25.00%	0.00%	0.00%
Industrials (INDU)	6.07	4.71	57.14%	1.36	42.86%	0.00%	42.86%	14.29%
Insurance (INSU)	4.69	4.75	68.75%	0.81	31.25%	56.25%	12.50%	0.00%
Media & Publishing (MEDIA)	6.90	7.10	20.00%	0.20	80.00%	20.00%	0.00%	0.00%
Other Financials (OFIN)	4.89	4.96	28.26%	0.37	71.74%	21.74%	4.35%	2.17%
Oil. Coal and Gas (OIL)	4.17	3.91	25.71%	0.26	74.29%	25.71%	0.00%	0.00%
Retail. & Cons. Goods (RET)	5.95	5.82	36.36%	0.45	63.64%	31.82%	2.27%	2.27%
Telecom (TELE)	4.44	4.71	54.24%	0.81	45.76%	45.76%	1.69%	6.78%
Others (OTHER)	6.59	6.54	67.57%	0.81	32.43%	54.05%	13.51%	0.00%
Total	2.82	2.82	38.33%	0.54	61.67%	26.45%	9.14%	2.75%

a: t-test for equality of Banking and Non Banking variable means. ***,**, and * indicate statistical significance at the 1%, 5% and 10% level, respectively
b: Moody's ≠ S&P's. Percentages expressed relative to number of issues for each industry
c: Absolute Gap = │Moody's – S&P's│

Table 4 – Sample Descriptive Statistics – Distribution by Year

	Issues			Split[b] (%)		Abs. Gap[c] (mean)		Issuers	
	Total	Banks	Sub[a].	Total	Banks	Total	Bank	Total	Banks
1993	30	16	4	50.00%	50.00%	0.80	0.75	18	7
1994	28	17	3	39.29%	5.88%	0.64	0.06	13	6
1995	41	30	4	56.10%	50.00%	1.00	0.93	21	14
1996	109	82	8	50.46%	45.12%	0.75	0.70	36	19
1997	171	150	11	35.67%	32.00%	0.53	0.46	39	23
1998	200	177	6	34.00%	28.81%	0.54	0.44	45	26
1999	478	400	19	33.89%	32.25%	0.41	0.40	90	44
2000	488	417	32	34.22%	35.01%	0.44	0.46	90	56
2001	372	303	26	31.72%	29.70%	0.40	0.38	88	50
2002	232	193	13	32.76%	31.09%	0.46	0.46	59	36
2003	324	266	13	59.26%	63.16%	0.98	1.08	73	35
Total	2,473	2,051	139	38.33%	36.71%	0.54	0.53	248	101

a: Subordinated issues
b: Moody's ≠ S&P's. Percentages expressed relative to number of issues for each industry
c: Absolute Gap = │Moody's – S&P's│

Table 5 – Ordered Logit Regressions of GAP on Industry Dummy Variables

Reported are regression coefficients and p-value (in parenthesis). The dependent variable is the absolute difference between Moody's and S&P issue rating (0, 1, 2, 3+). Equations are estimated with standard ordered logit. χ^2 denotes the p-value of the chi-square test for the null hypothesis that all the coefficients jointly equal zero.

Explanatory variables are defined as follows:

BANK a dummy variable that equals to 1 if the issuer is a bank and zero otherwise.

AUTO, BUILD, CHEM, CONS, ELE, ENGI, ENE, FOOD, FORE, INDU, INSU, MEDIA, OFIN, OIL, RET, REAL, RAIL, TELE, OTHER - Industry dummies equal to 1 if the bond issuer's main activity is in the corresponding industry, 0 if not. Only the statistically significant coefficients are reported.

RATING the average of Moody's and S&P's issue ratings.

SQRATING the square of RATING.

SUB a dummy variable that equals 1 if the issue is subordinated and zero if it is senior.

STDEV the standard deviation in rating for each issuer (across issues).

I also include issue size, issue maturity, and year, country and currency dummies. I do not report these variables' coefficients for ease of exposition.

	BANK dummy			Industry dummy			BANK dummy	
	1993-2003						1993-99	2000-03
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
BANK	1.247*** (0.000)	0.866*** (0.000)	0.885*** (0.000)	-	-	-	1.133*** (0.000)	1.109*** (0.000)
RATING	0.375*** (0.000)	1.823*** (0.000)	1.996*** (0.000)	0.352*** (0.000)	1.519*** (0.000)	1.727*** (0.000)	2.653*** (0.000)	1.678*** (0.000)
SQRATING	-	-0.179*** (0.000)	-0.201*** (0.000)	-	-0.156*** (0.000)	-0.187*** (0.000)	-0.238*** (0.000)	-0.176*** (0.000)
SUB	0.758*** (0.000)	0.399** (0.042)	0.196 (0.350)	0.780*** (0.000)	0.527*** (0.005)	0.400** (0.040)	-0.435 (0.214)	0.473* (0.086)
STDEV	-	-	0.336*** (0.001)	-	-	0.490*** (0.000)	0.081 (0.630)	0.418*** (0.002)
AUTO	-	-	-	-2.594*** (0.002)	-1.840** (0.017)	-2.667*** (0.009)	-	-
BUILD	-	-	-	-	-	-	-	-
CHEM	-	-	-	-1.008* (0.056)	-0.914* (0.087)	-	-	-
CONS	-	-	-	-	1.044* (0.090)	1.519** (0.015)	-	-
ELE	-	-	-	-1.860*** (0.004)	-	-	-	-
ENGI	-	-	-	-0.937* (0.078)	-	-	-	-
ENE	-	-	-	-	-	1.051*** (0.003)	-	-
FOOD	-	-	-	-	-	-	-	-
FORE	-	-	-	-2.828*** (0.000)	-	-	-	-
INDU	-	-	-	0.819* (0.099)	-	-	-	-
INSU	-	-	-	-	-	-	-	-
MEDIA	-	-	-	-2.728*** (0.001)	-	--	-	-
OFIN	-	-	-	-1.566*** (0.000)	-0.776** (0.033)	-	-	-
OIL	-	-	-	-1.255*** (0.002)	-1.501*** (0.000)	-1.417*** (0.002)	-	-

RET	-	-	-	-1.371*** (0.000)	-1.049*** (0.002)	-0.806** (0.019)	-	-
TELE	-	-	-	-	-	-0.567** (0.040)	-	-
OTHER	-	-	-	-0.588* (0.093)	0.693* (0.053)	1.183*** (0.005)	-	-
N.	2,473	2,473	2,386	2,473	2,473	2,386	1,014	1,372
Pseudo R^2	0.204	0.283	0.305	0.118	0.192	0.210	0.355	0.325
χ^2	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

***, **, * indicate statistical significance at the 1%, 5% and 10% level, respectively

Table 6 – Sample Descriptive Statistics – Bank Accounting Variables

	N.	Mean	Median	Min	Max	Std. Dev.
LOANS	1,429	57.080%	61.005%	0.309%	94.619%	21.222%
OTHEREARN	1,429	38.593%	34.650%	3.994%	95.643%	19.387%
FIXED	1,429	0.329%	0.111%	0.004%	3.223%	0.381%
NONEARN	1,429	3.998%	3.259%	0.301%	77.884%	5.391%
TA	1,429	142,941	90,589	979	682,139	124,326
CAPITAL	1,429	3.443%	2.759%	1.206%	15.622%	1.986%
LIQUID	1,429	19.065%	15.196%	0.213%	70.936%	14.418%

Table 7 – Ordered Logit Regressions of GAP on Bank Accounting Variables

Reported are regression coefficients and p-value (in parenthesis). The dependent variable is the absolute difference between Moody's and S&P issue rating (0, 1, 2, 3+). Accounting variables are used both alone (columns 1, 2 and 3) and interacted with country dummy variables (columns 7, 8 and 9). Interacted variables' coefficients are reported only when statistically significant.
Equations are estimated with standard ordered logit (columns 1, 2 and 3) and with the inclusion of fixed effects (columns 4, 5, 6, 7, 8 and 9). χ^2 denotes the p-value of the chi-square test for the null hypothesis that all the coefficients jointly equal zero.
Explanatory variables are defined as follows:

LOANS	the ratio of loans to total assets. Loans include discounted bills, short term loans, mortgages and other long term loans, and doubtful loans.
OTHEREARN	the ratio of other earning assets to total assets. Other earning assets include deposits with banks, trading securities, and equity investments.
FIXED	the ratio of fixed assets to total assets. Fixed assets include real estate and premises.
NONEARN	the ratio of non-earning assets to total assets. Non-earning assets include cash, intangible assets (goodwill), accrued income, and pre-paid expenses.
TA	total assets.
CAPITAL	the ratio of the book value of equity to total assets. Equity includes preferred shares and common equity.
LIQUID	the ratio of liquid financial assets to total assets.
RATING	the average of Moody's and S&P's issue ratings.
SQRATING	the square of RATING.
SUB	a dummy variable that equals 1 if the issue is a subordinated one and zero if it is senior one.

I also include issue size, issue maturity, and year, country and currency dummies. I do not report these variables' coefficients for ease of exposition.

				Fixed Effects					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
LOANS	1.842*** (0.001)	7.296*** (0.004)	-	0.095 (0.938)	13.053*** (0.001)	-	-	-	-
OTHEREARN	-	5.453** (0.038)	-	-	12.958*** (0.001)	-	-	-	-
LIQUID	-	-	-4.714*** (0.000)	-	-	1.429 (0.468)	-	-	-
FIXED	-254.895*** (0.000)	-249.443*** (0.000)	-240.154*** (0.000)	-186.660*** (0.000)	-173.701*** (0.000)	-192.546*** (0.000)	-	-	-
NONEARN	-5.454** (0.038)	-	-8.955*** (0.001)	-12.958*** (0.001)	-	-12.648*** (0.001)	-	-	-
CAPITAL	32.378*** (0.000)	32.378*** (0.000)	31.814*** (0.000)	60.833*** (0.000)	60.834*** (0.000)	62.094*** (0.000)	-	-	-
TA	0.370*** (0.000)	0.370*** (0.000)	0.535*** (0.000)	1.639*** (0.000)	1.639*** (0.000)	1.600*** (0.000)	1,237*** (0.000)	1,237*** (0.000)	1,231*** (0.000)
RATING	3.131*** (0.000)	3.131*** (0.000)	3.209*** (0.000)	4.048*** (0.000)	4.048*** (0.000)	4.049*** (0.000)	4,269*** (0.000)	4,269*** (0.000)	4,136*** (0.000)
SQRATING	-0.387*** (0.000)	-0.387*** (0.000)	-0.388*** (0.000)	-0.403*** (0.000)	-0.403*** (0.000)	-0.404*** (0.000)	-0,442*** (0.000)	-0,442*** (0.000)	-0,427*** (0.000)
SUB	1.142*** (0.000)	1.142*** (0.000)	1.135*** (0.008)	1.009*** (0.002)	1.009*** (0.002)	1.002*** (0.002)	1,374*** (0.000)	1,374*** (0.000)	1,439*** (0.000)
FRA-LOANS	-	-	-	-	-	-	-	39,584*** (0.000)	-
NET-LOANS	-	-	-	-	-	-	-24,620** (0.011)	-	-
UKE-LOANS	-	-	-	-	-	-	-	23,079** (0.049)	-
FRA-OTHEREARN	-	-	-	-	-	-	-	34,269*** (0.000)	-
UKE-OTHEREARN	-	-	-	-	-	-	-	29,106** (0.042)	-
GER-LIQUID	-	-	-	-	-	-	-	-	13,754**

									(0.014)
NET-LIQUID	-	-	-	-	-	-	-	-	41,765** (0.015)
GER-FIXED	-	-	-	-	-	-	-	-	650,700** (0.013)
FRA-NONEARN	-	-	-	-	-	-	-34,270*** (0.000)	-	-33,914*** (0.000)
UKE-NONEARN	-	-	-	-	-	-	-29,053** (0.042)	-	-
NET-EQUITY	-	-	-	-	-	-	109,656*** (0.001)	109,671*** (0.001)	198,896*** (0.000)
UKE-EQUITY	-	-	-	-	-	-	125,003*** (0.000)	124,960*** (0.000)	108,362*** (0.000)
N.	1,429	1,429	1,429	1,429	1,429	1,429	1,429	1,429	1,429
Pseudo R^2	0.289	0.289	0.293	0.445	0.445	0.445	0.723	0.661	0.803
χ^2	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

***. **. * indicate statistical significance at the 1%. 5% and 10% level, respectively